Complete Summary

GUIDELINE TITLE

Chronic abdominal pain in children.

BIBLIOGRAPHIC SOURCE(S)

Chronic abdominal pain in children. Pediatrics 2005 Mar;115(3):812-5. [13 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

All clinical reports from the American Academy of Pediatrics (AAP) automatically expire 5 years after publication unless reaffirmed, revised, or retired at or before that time.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Chronic abdominal pain including:

- Functional abdominal pain
- Functional dyspepsia
- Irritable bowel syndrome
- Abdominal migraine
- Functional abdominal pain syndrome

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Family Practice
Internal Medicine
Pediatrics

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To provide guidance for the clinician in the evaluation and treatment of children with chronic abdominal pain

TARGET POPULATION

Children and adolescents with chronic abdominal pain

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnostic Evaluation

1. Obtaining patient history of signs and symptoms
2. Physical examination
3. Stool sample tests for occult blood
4. Blood tests

General Management Strategies

1. Addressing psychological factors
2. Providing education for family
3. Establishing reasonable treatment goals
4. Medications
    - Acid-reduction therapy
    - Antispasmodic agents
    - Smooth muscle relaxants
    - Psychotropic agents
    - Nonstimulating laxatives
    - Antidiarrheals

Note: The following diagnostic and therapeutic interventions were also considered but specific recommendations were not made: abdominal ultrasound, endoscopic biopsy, esophageal pH monitoring, peppermint oil, lactose-free diet, fiber supplements, pizotifen, cognitive-behavioral therapy, diagnostic or therapeutic laparoscopy

MAJOR OUTCOMES CONSIDERED

- Signs and symptoms
- Predictive value of patient history and diagnostic tests
- Diagnostic value of psychosocial history
- Effectiveness of pharmacologic treatment, dietary interventions, cognitive behavior therapy, surgery

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

After initial discussions, 15 questions were defined and collapsed into the 8 questions in this review. An initial search (see Table 2 of the technical report [see "Availability of Companion Documents" field]) was performed on PubMed (www.ncbi.nlm.nih.gov/entrez/query.fcgi?db_PubMed) on October 27, 2000, searching for "abdominal pain" in the broadest possible way but limited to pediatric studies; 1,498 titles were retrieved. The search was repeated on June 19, 2002, providing another 158 references, for a total of 1,656.

In the review process, the following were exclusion criteria: non-English, nonpediatric, nonrecurrent/nonfunctional/nonchronic abdominal pain, small study (sample size $\leq$5), no original data, letter to the editor, study on Helicobacter pylori, and study subjects not baseline-healthy (e.g., patients with sickle cell disease). The studies regarding H pylori were excluded because the literature regarding H pylori had been reviewed recently by a North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition committee, and a practice guideline had been published. All titles were reviewed by a single reader; 10% of the excluded articles were reviewed by 2 committee members, with 100% agreement regarding exclusion criteria. Of nonrejected titles, abstracts were read by a single reader, and additional exclusions were made. Articles were read by at least 2 readers. After review, 94 articles were included in the evidence review.

NUMBER OF SOURCE DOCUMENTS

After review, 94 articles were included in the evidence review.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)
Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Rating of Evidence Quality

A. Well-designed randomized controlled trials (RCTs) or diagnostic studies on relevant populations: ≥2 studies that compared the test with a criterion standard in an independent, blind manner in an unselected population of children similar to those addressed in the report
B. Randomized controlled trials or diagnostic studies with minor limitations and overwhelmingly consistent evidence from observational studies: a single study that compared the test with a criterion standard in an independent, blind manner in an unselected population of children similar to those addressed in the report
C. Observational studies (case-control and cohort design)
D. Expert opinion, case reports, reasoning from first principles

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Ten articles were abstracted in parallel, with similar results, demonstrating a reliable procedure. Data were abstracted regarding the study as a whole, design and quality, patient groups, and outcomes and their values. Efforts were made to standardize the vocabulary used in recording the methodology and results, resulting in a controlled vocabulary of 1,262 terms.

The definitions of the study designs were as follows: uncontrolled experiment, an unspecified group of participants received intervention and follow-up data were provided; case-series cross section, data were provided on a single group of participants; case-series follow-up, baseline and follow-up data were provided on a single group of participants; cohort cross section, a single group of participants was divided into 2 or more groups on the basis of a specified feature (e.g., history or laboratory tests) and described; cohort follow-up, baseline and follow-up data were provided on a single group of participants who were divided into 2 or more groups; case control, 2 or more groups were assembled and retrospective or current data are provided; and randomized controlled trial (RCT), participants were randomly assigned to intervention, and follow-up data are provided. Because the questions were all comparative, only studies with 2 arms or more were included in this review (thereby excluding case series).

Table 3 of the technical report (see "Availability of Companion Documents" field) shows the type of articles and studies as processed in the review. Most articles were rejected on the basis of title review. Some articles were rejected at more than 1 point in the process, as indicated by the overlaps. Ninety-four articles were left for review. Sixty-four articles had full data investigation, which included separating articles into 1 or more studies in case there was, for example, a baseline case-control study with a cohort follow-up; hence, the 64 articles translated into 83 studies.

An article might have more than 1 study in it if, for instance, there was an initial cohort cross-section with a subsequent cohort follow-up reported in the same article. Of the 83 studies for which methodology was reviewed, 46 were case control, 20 were cohort cross section, 10 were cohort follow-up, and 7 were RCTs.

A recent systematic review of treatments in recurrent abdominal pain identified the same RCTs, providing validation for this approach.

Data abstracted for each study as a whole included study city; study country; single or multiple site; site type (community, physician office, academic pediatric setting, gastroenterologist office); funding source; age range, mean, and standard deviation (SD); sample size; number of groups; number of outcomes; and number of time points.

A methodology review was performed for each study, based on the Newcastle-Ottawa Scale for assessing the quality of nonrandomized studies in meta-analyses. Inclusion and exclusion criteria were noted by using the controlled vocabulary. The evidence was characterized in terms of outcome type (based on the controlled vocabulary), outcome name (specific to this study), outcome units (for continuous outcomes), outcome time point (baseline or later), method (how outcome was assessed), sample size at outset, and sample size at termination (a difference from sample size at outset indicated loss to follow-up). Data for continuous outcomes (in which a quantity was measured within a participant) were usually characterized by the mean and SD. For categorical data (in which participants were counted once), the category was labeled by using the controlled vocabulary, test statistic name, P value (and comments), and data source (page/figure/table).

Figure 1 of the technical report summarizes the geographic distribution of the studies for which the country was provided. Of 89 articles for which data were provided, 62 (70%) were performed at a single site, 30 (34%) were based on research at an academic pediatric center, 27 (31%) were performed at a gastroenterology clinic, 17 (19%) were performed at the community level, and 9 (10%) were performed at general pediatric offices.

The guideline developers calculated a quality score for each study as the ratio of quality items attained to the total number of items. The average, SD, and confidence intervals are given for each design in Table 4 of the technical report. Although the quality scores seem to increase for the more preferred designs, the confidence intervals all overlap.

Evidence tables for each of the 8 questions were generated across studies and grouped according to arm type, method, or outcome, as pertinent to the question. There were 685 outcomes across the studies, categorized as history outcomes (550 [80%]), tissue/physiologic outcomes (115 [17%]), physical examination outcomes (15 [2%]), and use of medications (5 [1%]). Among the 685 outcomes, 161 of the P values (23%) were not statistically significant, and an additional 316 (46%) were not provided by investigators. Each subcommittee member took responsibility for 1 or more questions. Each reviewed the evidence tables and the primary articles and generated a summary of the research. The scale for rating evidence is described in "Rating Scheme for the Strength of the Evidence."

The reviews were discussed by the subcommittee, and the nominal group technique was used to achieve consensus.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Nominal Group Technique)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guideline-development process of Woolf was used with a subcommittee of experts and community physicians guiding the work of the methodologist (H.P.L.) to assemble the evidence, reviewing the results of the methodologist and using the nominal group technique to arrive at conclusions based on the evidence.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Recommendations

1. The term "recurrent abdominal pain" as currently used clinically and in the literature should be retired. Functional abdominal pain is the most common cause of chronic abdominal pain. It is a specific diagnosis that needs to be distinguished from anatomic, infectious, inflammatory, or metabolic causes of abdominal pain. Functional abdominal pain may be categorized as one or a combination of: functional dyspepsia, irritable bowel syndrome, abdominal migraine, or functional abdominal pain syndrome (see table below titled "Recommended Clinical Definitions of Long-Lasting Intermittent or Constant Abdominal Pain in Children").
2. Functional abdominal pain generally can be diagnosed correctly by the primary care clinician in children 4 to 18 years of age with chronic abdominal pain when there are no alarm symptoms or signs, the physical examination is normal, and the stool sample tests are negative for occult blood, without the requirement of additional diagnostic evaluation.
3. The presence of alarm symptoms or signs, including but not limited to involuntary weight loss, deceleration of linear growth, gastrointestinal blood loss, significant vomiting, chronic severe diarrhea, persistent right upper or

right lower quadrant pain, unexplained fever, family history of inflammatory bowel disease, or abnormal or unexplained physical findings, is generally an indication to pursue diagnostic testing for specific anatomic, infectious, inflammatory, or metabolic etiologies on the basis of specific symptoms in an individual case. Significant vomiting includes bilious emesis, protracted vomiting, cyclical vomiting, or a pattern worrisome to the physician. Alarm signs on abdominal examination include localized tenderness in the right upper or right lower quadrants, a localized fullness or mass effect, hepatomegaly, splenomegaly, costovertebral angle tenderness, tenderness over the spine, and perianal abnormalities.

4. Testing may also be performed to reassure the patient, parent, and physician of the absence of organic disease, particularly if the pain significantly diminishes the quality of life of the patient.
5. The child with functional abdominal pain is best evaluated and treated in the context of a biopsychosocial model of care. Although psychological factors do not help the clinician distinguish between organic (disease-based) and functional pain, it is important to address these factors in the diagnostic evaluation and management of these children.
6. Education of the family is an important part of treatment of the child with functional abdominal pain. It is often helpful to summarize the child's symptoms and explain in simple language that although the pain is real, there is most likely no underlying serious or chronic disease. It may be helpful to explain that chronic abdominal pain is a common symptom in children and adolescents, yet few have a disease. Functional abdominal pain can be likened to a headache, a functional disorder experienced at some time by most adults, which very rarely is associated with serious disease. It is important to provide clear and age-appropriate examples of conditions associated with hyperalgesia, such as a healing scar, and manifestations of the interaction between brain and gut, such as the diarrhea or vomiting children may experience during stressful situations (e.g., before school examinations or important sports competitions).
7. It is recommended that reasonable treatment goals be established, with the main aim being the return to normal function rather than the complete disappearance of pain. Return to school can be encouraged by identifying and addressing obstacles to school attendance.
8. Medications for functional abdominal pain are best prescribed judiciously as part of a multifaceted, individualized approach to relieve symptoms and disability. It is reasonable to consider the time-limited use of medications that might help to decrease the frequency or severity of symptoms. Treatment might include acid-reduction therapy for pain associated with dyspepsia; antispasmodic agents, smooth muscle relaxants, or low doses of psychotropic agents for pain or nonstimulating laxatives or antidiarrheals for pain associated with altered bowel pattern.
9. Additional research is needed to fill the large gaps of knowledge on chronic abdominal pain in children.

Recommended Clinical Definitions of Long-Lasting Intermittent or Constant Abdominal Pain in Children	
Term	Clinical Definition
Chronic abdominal pain	Long-lasting intermittent or constant abdominal pain that is functional or organic (disease-based)
Functional	Abdominal pain without demonstrable evidence of a pathologic

Recommended Clinical Definitions of Long-Lasting Intermittent or Constant Abdominal Pain in Children	
Term	Clinical Definition
abdominal pain	condition, such as an anatomic, metabolic, infectious, inflammatory, or neoplastic disorder; functional abdominal pain may present with symptoms typical of functional dyspepsia, irritable bowel syndrome, abdominal migraine, or functional abdominal pain syndrome.
Functional dyspepsia	Functional abdominal pain or discomfort in the upper abdomen
Irritable bowel syndrome	Functional abdominal pain associated with alteration in bowel movements
Abdominal migraine	Functional abdominal pain with features of migraine (paroxysmal abdominal pain associated with anorexia, nausea, vomiting, or pallor as well as a maternal history of migraine headaches)
Functional abdominal pain syndrome	Functional abdominal pain without the characteristics of dyspepsia, irritable bowel syndrome, or abdominal migraine

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

Of the 83 studies for which methodology was reviewed, 46 were case control, 20 were cohort cross section, 10 were cohort follow-up, and 7 were randomized controlled trials (RCTs).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate evaluation and management of chronic abdominal pain in children and adolescents

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Chronic abdominal pain in children. Pediatrics 2005 Mar;115(3):812-5. [13 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2005 Mar

GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Pediatrics

GUIDELINE COMMITTEE

Subcommittee on Chronic Abdominal Pain

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Subcommittee on Chronic Abdominal Pain: Carlo Di Lorenzo, MD, Co-chairperson; Richard B. Colletti, MD, Co-chairperson; Harold P. Lehmann, MD, PhD; John T. Boyle, MD; William T. Gerson, MD; Jeffrey S. Hyams, MD; Robert H. Squires, Jr, MD; Lynn S. Walker, PhD

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

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GUIDELINE AVAILABILITY

Electronic copies: Available from the American Academy of Pediatrics (AAP) Policy Web site.

Print copies: Available from American Academy of Pediatrics, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

AVAILABILITY OF COMPANION DOCUMENTS

The following is available:

- Subcommittee on Chronic Abdominal Pain. Technical report. Chronic abdominal pain in children. Pediatrics 2005 March;115(3):e370-81.

Electronic copies: Available from the American Academy of Pediatrics (AAP) Policy Web site.

Print copies: Available from American Academy of Pediatrics, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

PATIENT RESOURCES

None available

NGC STATUS

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